

What is claimed is:

1. A piezoelectric transformer comprising:

a piezoelectric block having first and second faces to convert electric signal into mechanical vibration by outline vibration mode;

an input electrode at the central region on the first face, the electric signal being inputted to the input electrode;

an output electrode at the peripheral region on the first face to convert the mechanical vibration into the electric signal and output the converted electric signal, the output electrode being separated from the input electrode in predetermined distance; and

a common electrode on the second face of the piezoelectric block;

wherein the size of the input and output electrodes is minimized at the central region of the sides of the first face.

2. The piezoelectric transformer according to claim 1, wherein the input electrode includes diamond shape.

3. The piezoelectric transformer according to claim 2, wherein the size ratio of the input and output electrodes is approximately 1:1.5-1:3.14.

4. The piezoelectric transformer according to claim 1, wherein the common electrode is integrally formed on at least a part of the second face of the piezoelectric block.

5. The piezoelectric transformer according to claim 1, wherein the common electrode is formed on the second face of the piezoelectric block in a plurality of isolations to prevent the input of the noise.

6. The piezoelectric transformer according to claim 1, wherein the common electrode is facing with the input and output electrodes.

7. The piezoelectric transformer according to claim 1, wherein the input electrode includes diamond shape and the output electrode at the central region of the sides on the first face of the piezoelectric block has smaller size than that of the output electrode at the corner region.

8. The piezoelectric transformer according to claim 1, wherein the input electrode is substantially cross shape.

9. A piezoelectric transformer comprising:

a piezoelectric block having first and second faces to convert electric signal into mechanical vibration by outline vibration mode;

an input electrode disposed closer to the central region of each sides than to the corner region on the first face of the piezoelectric block, the electric signal being inputted to the input electrode;

an output electrode separated from the input electrode in predetermined distance at the peripheral region on the first face so that its size at the central region of each sides is smaller than that at the corner region, the output electrode

converting the mechanical vibration into the electric signal and outputting the converted electric signal; and

a common electrode on the second face of the piezoelectric block.